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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,395	06/24/2003	Mohammad A. Safai	10004173-3	3063

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AGILENT TECHNOLOGIES, INC.
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EXAMINER

MADDEN, GREGORY VINCENT

ART UNIT	PAPER NUMBER
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2622

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/603,395

Applicant(s)

SAFAI, MOHAMMAD A.

Examiner

Gregory V. Madden

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 9-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

Applicant's arguments (see Amendment after Non-Final Office Action, filed November 10, 2006) with respect to the rejection(s) of claim(s) 1, 2, 8, 16, and 18 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Acharya (U.S. Pat. 6,392,699) under 35 U.S.C. 102(e).

First, the Examiner agrees with Applicant's argument that the Dunton et al. reference (U.S. Pat. 6,151,069) fails to explicitly teach the claimed limitation of a preprocessor comprising hardware for preprocessing digital images received from the imaging device and storing the digital images in a memory. Thus, the previous rejection to claims 1 and 18 is hereby withdrawn, and the previous rejection to dependent claims 2-8, 16, and 17 is also withdrawn. However, as noted above, a new ground or rejection is made in view of Archarya, and therefore the Applicant's arguments regarding these claims are moot in view of this new ground of rejection. As the Archarya reference is newly cited prior art, the current office action is non-final. Please refer to the updated rejection to claims 1-8 and 16-18 below.

In regard to claims 9-15, the claims remain objected to by the Examiner as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Finally, regarding claims 1, 3, 4, 8, and 18, the Examiner notes that the Applicant has amended the claims to provide better consistency with the terminology of the specification. The amendments do not significantly alter the scope of the claims, and therefore the new ground of rejection is non-final.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Acharya (U.S. Pat. 6,392,699).

First, regarding **claim 1**, the Acharya reference teaches a digital image processor (image processing components shown in Fig. 5) for use in a digital camera having an imaging device (sensor 600) arranged to output digital images and a memory (RAM) for storing digital images, the digital image processor comprising a preprocessor (pixel substitution unit 615) comprising hardware for preprocessing digital images received from the imaging device and storing the digital images in the memory (RAM used to store image data, as taught in Col. 11, Lines 5-7), and a postprocessor (integrated color interpolation and color space conversion module 627) comprising hardware arranged to receive digital images and postprocess the digital images into viewable form. Please refer to Figs. 5 and 6, and Col. 9, Line 51 – Col. 11, Line 57.

As for **claim 2**, the limitations of claim 1 are taught above, and Acharya further teaches that the digital image processor comprises a system bus (bus 660) within the digital image processor, wherein the preprocessor (pixel substitution unit 615), the postprocessor (integrated color interpolation and color space conversion module 627), and an interface for the memory (RAM used to store image data, as taught in Col. 11, Lines 5-7) are coupled to the system bus. Again, please refer to Fig. 5 and Col. 9, Line 51 – Col. 11, Line 57.

Considering **claim 3**, the limitations of claim 2 are taught above by Acharya, and the Acharya reference further teaches that the postprocessor (627) includes a color interpolator arranged to derive an unknown pixel color value associated with a first pixel based upon at least one known pixel color value associated with at least one other pixel using pixel color weight factors associated with an image sensor in the imaging device (600), as is taught in Col. 4, Line 37 – Col. 5, Line 60, and Col. 10, Lines 21-58.

In regard to **claim 4**, the limitations of claim 3 are taught above, and Acharya further teaches that a color pattern setting buffer (from RAM 628 connected to integrated color interpolation and color space conversion module 627) that is connected to the color interpolator and capable of storing image sensor data associated with the image sensor included in the imaging device (600), the image sensor being used to derive the associated pixel color weight factors. Please refer to Col. 4, Line 37 – Col. 5, Line 60, and Col. 10, Lines 21-58.

Regarding **claim 8**, the limitations of claim 2 are again taught above, and Acharya discloses that the preprocessor (pixel substitution unit 615) includes a non-uniformity corrector (pixel substitution of dead pixels) capable of correcting non-uniformities included in the digital image received from the imaging device, as is shown in Fig. 5 and Col. 10, Lines 1-11.

Next, considering **claim 16**, again the limitations of claim 2 are set forth above, and Acharya teaches that the postprocessor (627) is arranged such that its operation does not interfere with the operation of the preprocessor (615) or taking pictures using the digital camera. Note in Fig. 5 that the postprocessor (627) and preprocessor (615) are separately connected to the system bus (660), and therefore the operation of the preprocessor does not rely on the operation of the postprocessor, nor does the operation of the digital camera imaging device. Please refer further to Col. 9, Line 51 – Col. 11, Line 57.

As for **claim 17**, the limitations of claim 1 are taught above by Acharya, and Acharya teaches that the digital image processor has operations in which data corresponding to preprocessed images form the

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preprocessor (i.e. data from pixel substitution module 615) are directed to the memory (i.e. directed to a RAM, as disclosed in Col. 11, Lines 5-7), thereby bypassing the postprocessor (627), and the digital image processor has operations in which data corresponding to the preprocessed images from the preprocessor (i.e. data from pixel substitution module 615) is directed to the postprocessor (627, at times via companding module 625) for postprocessing, as is illustrated in Fig. 5. While Acharya does not specifically disclose that the digital image processor has a first mode (for bypassing the postprocessor) and a second mode (for directing data from the preprocessor to the postprocessor), it is inherent that such modes are present to enable data from the preprocessor to be stored in a memory without first being directed to the postprocessor, and also to enable data from the preprocessor to be directly sent to the postprocessor without being stored in the memory. Please refer again to Col. 9, Line 51 – Col. 11, Line 57.

Finally, regarding **claim 18**, the Acharya reference discloses a digital camera (camera 730) comprising an imaging device (sensor 600) arranged to output digital images, a digital image processor (image processing circuit 732) as recited in claim 1 (see above), and a memory (image memory unit 734) for storing the digital images. Please refer to Figs. 5 and 6, and Col. 9, Line 51 – Col. 11, Line 57.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya (U.S. Pat. 6,392,699) in view of Takizawa et al. (U.S. Pat. 6,388,706).

Next, considering **claim 5**, the limitations of claim 3 are taught above by the Acharya, but the Acharya reference fails to teach that the postprocessor (627) further includes a RGB reconstructor that is connected to the color interpolator and capable of converting the digital image to an RGB format as needed. However, the Takizawa reference teaches a digital image processor (7) that includes an RGB reconstructor (color transformation section 7b) that is connected to the color interpolator (7a) and is capable of converting the digital image to an RGB format as needed. See Fig. 1 and Col. 8, Lines 57-67. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the RGB reconstructor of Takizawa with the postprocessor of Acharya. One would have been motivated to do so because, as Acharya teaches in Col. 11, Lines 43-54, it is advantageous to convert digital image data to an RGB format depending on the optimal rendering specifications of an output device such as a printer or a monitor. While Acharya shows that the RGB reconstruction is done outside of the digital camera, performing the RGB reconstruction inside the digital camera, as done by Takizawa, adds the further advantage of negating the need for external processing of the digital image data to be printed or viewed on a monitor.

Regarding **claim 6**, Acharya in view of Takizawa discloses the limitations of claim 5 above, and the Takizawa reference further shows a digital image compressor (image compression section 9) connected to the color interpolator (7a) and RGB reconstructor (7b), the digital image compressor being capable of compressing digital images. See Fig. 1 and Col. 6, Lines 4-7:

Finally, considering **claim 7**, the limitations of claim 6 are taught above, and the Takizawa reference shows in Fig. 1 that the color interpolator (7a), RGB reconstructor (7b), and compressor (9) are each connected to a system bus (and thus controlled by CPU 11).

Allowable Subject Matter

Claims 9-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

First, in regard to claim 9, the prior art was not found to teach or reasonably suggest, in conjunction with the limitations of claim 8, a preprocessor that includes a programmable sampling filter connected to the non-uniformity corrector, a modular transformer connected to the programmable sampling filter, and a ditherer connected to the modular transformer.

As for claims 10-15, because these claims depend either directly or indirectly from claim 9, they too are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Anderson (U.S. Pat. 6,222,538)

Hamamura (U.S. Pat. 6,628,336)

Acharya (U.S. Pat. 7,015,962)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory V. Madden whose telephone number is 571-272-8128. The examiner can normally be reached on Mon.-Fri. 8AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Madden
January 30, 2007



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER